REMARKS

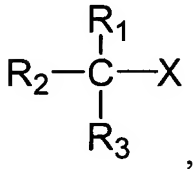
Claims 1-20 are pending in this application. No amendment is made in this Response. It is believed that this Response is fully responsive to the Office Action dated **September 9, 2008**.

Claims 1-20 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kazuyoshi et al. (JP 2004-244401). (Office action p. 2)

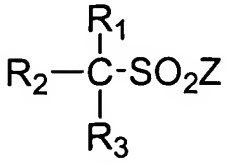
The rejection of claims 1-20 is respectfully traversed, and reconsideration is requested. Applicant separately addresses the rejections of independent claims 1, 6, 11 and 16, as follows:

(i) Claim 1:

Claim 1 is directed to a method for producing a fluorine-containing halide represented by the general formula:



the method comprising reacting a fluorine-containing sulfonyl halide with a metal halide in the presence or absence of a solvent, the fluorine-containing sulfonyl halide represented by general formula (1):



(1)

and the metal halide represented by general formula M^1X, wherein M^1 is Ma or $(Mb)_{1/2}$, Ma being an alkali metal, Mb being an alkaline earth metal, and X being Br or I.

This method produces a fluorine-containing halide by reacting the fluorine-containing sulfonyl halide of general formula (1), which is used as a starting material, with the metal halide represented by general formula M^1X. According to this method, the terminal $-SO_2Z$ of the compound of general formula (1) is replaced by -X via the reaction with M^1X, thereby producing the fluorine-containing halide represented by the general formula shown above.

On the other hand, Kazuyoshi et al. (JP-2004-244401-A), cited by the Examiner, discloses, for example, in Claim 1, a method for producing a fluorine-containing fluorosulfonylalkyl vinyl ether represented by the chemical formula: $CF_2=CFO(CF_2CF(CF_3)O)_nCF_2CF_2SO_2F$, wherein a fluorine-containing chlorosulfonylalkyl vinyl ether represented by the chemical formula: $CF_2=CFO(CF_2CF(CF_3)O)_nCF_2CF_2SO_2Cl$ is reacted with a fluorinating agent represented by the chemical formula $MF\cdot(HF)_m$.

In the method disclosed in Kazuyoshi et al., the fluorine-containing chlorosulfonylalkyl vinyl ethers represented by the formula: $CF_2=CFO(CF_2CF(CF_3)O)_nCF_2CF_2SO_2Cl$ are encompassed within the scope of the definition of the fluorine-containing sulfonyl halides represented by general formula (1) in the method of the present invention. However, the method of Kazuyoshi et al. differs from the method of present Claim 1 in that the material to be reacted with such a starting material is a fluorinating agent represented by the formula $MF\cdot(HF)_m$, wherein M is an alkali metal, and m is 0 to

5. More specifically, these methods are clearly different in the following respect: the method of Kazuyoshi et al. uses a metal fluoride represented by the formula $MF\cdot(HF)_m$ as the material to be reacted with a fluorine-containing chlorosulfonylalkyl vinyl ether; while the method as defined in present Claim 1 uses a metal bromide or a metal iodide represented by the general formula M^1X, wherein X is Br or I, as the material to be reacted with a compound of general formula (1).

Moreover, these methods also differ in terms of their products, since the product of the method as defined in present Claim 1 is a fluorine-containing halide wherein X (Br or I) is directly attached to the carbon atom, while the product of the method of Kazuyoshi et al. is a sulfonyl fluoride wherein $-SO_2F$ is attached to the carbon atom.

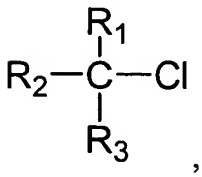
More specifically, according to the method as defined in present Claim 1, the terminal $-SO_2Z$ of the compound of general formula (1) is reacted with M^1X, causing the entire $-SO^2Z$ to be converted to -X, to produce a target fluorine-containing halide; while, according to the method of Kazuyoshi et al., only the chlorine atom of the terminal $-SO_2Cl$ of the fluorine-containing chlorosulfonylalkyl vinyl ether is replaced by a fluorine atom to form $-SO_2F$.

Hence, a comparison of the method as defined in present Claim 1 and the method of Kazuyoshi et al. reveals that, although there is overlap in their starting materials, these methods differ in terms of the materials to be reacted with these starting materials, and also differ in terms of their products. There is no suggestion in the disclosure of Kazuyoshi et al. that a fluorine-containing halide wherein Br or I is directly attached to the carbon atom can be produced using a metal bromide or a metal iodide, instead of a metal fluoride.

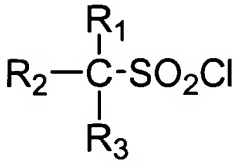
Accordingly, the invention as defined in Claim 1 is clearly unobvious over Kazuyoshi et al.

(ii) Claim 6:

Claim 6 is directed to a method for producing a fluorine-containing chloride represented by the general formula:



the method comprising reacting a fluorine-containing sulfonyl chloride with at least one member selected from the group consisting of metals belonging to periods 4 to 7 of groups 2 to 16 in the periodic table and compounds containing any of such metals, in the presence or absence of a solvent, the fluorine-containing sulfonyl chloride represented by general formula (1'):



(1')

In the method as defined in present Claim 6, the product is a fluorine-containing chloride wherein the chlorine atom is directly attached to the carbon atom, and thus, clearly differs from the product of Kazuyoshi et al.

The method also differs from the method of Kazuyoshi et al. in that it uses "at least one member selected from the group consisting of metals belonging to periods 4 to 7 of groups 2 to 16 in

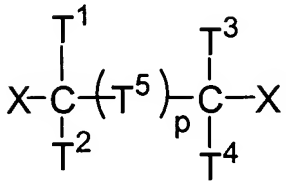
the periodic table and compounds containing any of such metals" as the material to be reacted with the fluorine-containing sulfonyl chloride, while the method of Kazuyoshi et al. uses a metal halide.

Thus, the method as defined in present Claim 6 also differs from the method disclosed in Kazuyoshi et al. in terms of its material to be reacted with the fluorine-containing sulfonyl chloride, and further differs in terms of its product.

Accordingly, the invention as defined in Claim 6 is also unobvious over Kazuyoshi et al.

(iii) Claims 11 and 16:

Claim 11 is directed to a method for producing a fluorine-containing halide represented by the general formula:



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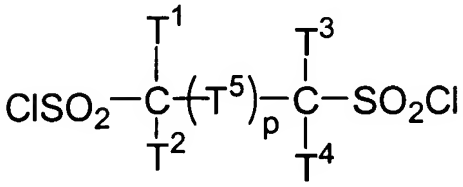
the method comprising reacting a fluorine-containing disulfonyl chloride with a metal halide in the presence or absence of a solvent, the fluorine-containing disulfonyl chloride represented by general formula (2):



(2)

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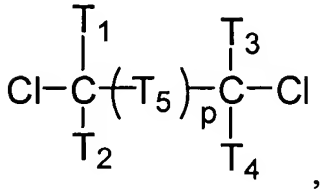
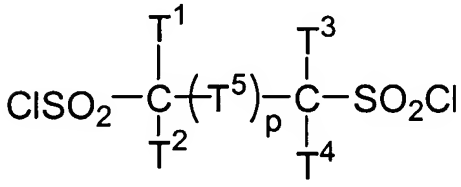
and the metal halide represented by the general formula M^1X, wherein M^1 is Ma or $(Mb)_{1/2}$, Ma being an alkaline metal, Mb being an alkaline earth metal, and X being Br or I.

This method, which uses a fluorine-containing disulfonyl chloride as the starting material, utilizes the same reaction as that of Claim 1, in that the material to be reacted with the starting material is a metal bromide or a metal iodide represented by the general formula M^1X, wherein X is Br or I, and the product is a fluorine-containing halide wherein the Xs (Br or I) are directly attached to the carbon atoms.

Claim 16 is directed to a method for producing a fluorine-containing chloride represented by the general formula:



the method comprising reacting a fluorine-containing disulfonyl chloride with at least one member selected from the group consisting of metals belonging to periods 4 to 7 of groups 3 to 16 in the periodic table and compounds containing any of such metals, in the presence or absence of a solvent, the fluorine-containing disulfonyl chloride represented by general formula (2):



(2)

This method, which uses a fluorine-containing disulfonyl chloride as the starting material, utilizes the same reaction as that of Claim 6, in that the material to be reacted with the starting material is "at least one member selected from the group consisting of metals belonging to periods 4 to 7 of groups 3 to 16 in the periodic table and compounds containing any of such metals," and the product is a fluorine-containing chloride wherein the chlorine atoms are directly attached to the carbon atoms.

On the other hand, as described in items (i) and (ii) above in connection with Claims 1 and 6, the method of Kazuyoshi et al. uses a metal fluoride represented by the formula $MF\cdot(HF)_m$, as the material to be reacted with a fluorine-containing chlorosulfonyl alkyl vinyl ether, and produces a sulfonyl fluoride that contains $-SO_2F$ on an end thereof. Thus, in terms of both the product and the material to be reacted with the starting material, the methods as defined in present Claims 11 and 16 differ from the method of Kazuyoshi et al.

Since independent claims 1, 6, 11 and 16 are not obvious over Kazuyoshi et al., all of claims 1-20 are not obvious over this reference.

Applicants are queried as to the reasons for the proviso clause: "provided that when none of R^1, R^2 and R^3 is a fluorine atom, at least one of R^1, R^2 and R^3 is a monovalent fluorine-containing hydrocarbon group, and when Z is F, R_1 and R_3 are both fluorine atoms and R_2 is a $CF_2=CFOCF_2-$ group." If it is in order to avoid prior art, applicants are requested to provide

the examiner with a copy of the said art and to specifically identify where in the prior art the proviso compounds can be found.

This clause is not intended to exclude any particular prior art, but to clarify that the starting materials and the target products of the present invention are specific compounds containing fluorine. As stated in the present specification, the target products of the invention are fluorine-containing compounds. The use of the specific fluorine-containing compounds recited in the present claims as starting materials allows the reactions to proceed smoothly under the conditions recited in each claim, thereby producing the target fluorine-containing halides. The above-mentioned proviso clause is intended to clarify this feature.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact the applicants' undersigned agent at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, the applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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